

Serial No.: 10/596,095

Preliminary Amendment filed September 24, 2007

Atty. Docket: 0108048.0542178

**In the claims, please make the following amendments:**

What is claimed is:

1. (currently amended) A composition ~~for treating water~~ controlling the growth of microorganisms comprising:
  - (a) one or more metasilicate;
  - (b) one or more carbonate;
  - (c) one or more glyconate; and
  - (d) one or more sulfate.
2. (original) The composition of claim 1, wherein the composition further comprises (e) one or more salts.
3. (original) The composition of claim 1, wherein the concentration is in an amount effect to treat a biofilm in a water system.
4. (original) The composition of claim 1, wherein the one or more metasilicate is an alkali metal silicate selected from the group consisting of sodium or potassium metasilicate, sodium or potassium orthosilicate and mixtures thereof.
5. (original) The composition of claim 1, wherein the one or more carbonate is selected from the group consisting of sodium carbonate, sodium sesquicarbonate, sodium sulfate, sodium bicarbonate and mixtures thereof.
6. (original) The composition of claim 1, wherein the glyconate is selected from the group consisting of ammonium glyconate, lithium glyconate, sodium glyconate, sodium starch glyconate, potassium glyconate, ammonium acid glyconate, sodium acid glyconate, lithium acid glyconate, potassium acid glyconate, ammonium D-glyconate, lithium D-glyconate, sodium D-glyconate, potassium D-glyconate, glyconic acid, glyconic D acid, glyconic L acid, ammonium L-glyconate, lithium L-glyconate, sodium L-glyconate, potassium L-glyconate, magnesium glyconate, magnesium acid glyconate, magnesium D-glyconate, magnesium L-glyconate,

Serial No.: 10/596,095

Preliminary Amendment filed September 24, 2007

Atty. Docket: 0108048.0542178

calcium glyconate, calcium acid glyconate, calcium D-glyconate, calcium L-glyconate and mixtures thereof.

7. (original) The composition of claim 1, wherein the one or more sulfate is selected from the group consisting of potassium aluminum sulfate, sulfuric acid, sodium sulfate, potassium sulfate, lithium sulfate, ammonium sulfate, magnesium sulfate, strontium sulfate, aluminum sulfate, and mixtures thereof.
8. (currently amended) The composition of claim 1, wherein the composition does not produce or comprise a peroxide, a terpene or sodium ~~hypochlorite~~ hypochlorite.
9. (original) The composition as defined in claim 1, further comprising an effective amount of a bactericide.
10. (original) The composition as defined in claim 2, wherein the salt is sea salt.
11. (original) The composition as defined in claim 9, wherein the bactericide is any bactericide having a bactericidal potency and host spectrum substantially equivalent to hydrogen peroxide.
12. (original) The composition as defined in claim 1, which further comprises a biofilm dislodging enhancer agent.
13. (original) The composition as defined in claim 12, wherein the enhancer agent is a calcium chelator.
14. (original) The composition as defined in claim 12 wherein the enhancer agent is a chaotropic agent.
15. (original) The composition as defined in claim 1, wherein the composition, prior to final use, is prepared as a composition comprising:
  - (a) Meta Silicate about 4.9 kg
  - (b) Sodium Carbonate about 4.5 kg
  - (c) Sodium Glyconate about 1.5 kg
  - (d) Inorganic salt about 1.5 kg

Serial No.: 10/596,095  
Preliminary Amendment filed September 24, 2007  
Atty. Docket: 0108048.0542178

(e) Potassium Al Sulfate about 1.5 kg  
per 300 liters of water.

16. (original) A method for removing biofilm from, and/or for preventing biofilm from forming on a surface on a water system, comprising adding an effective amount of a composition of claim 1-15 to the water system.
17. (original) The method of claim 16, further comprising passing an ozone-containing gas through the water.
18. (original) The method of claim 16, further comprising irradiating the supply of water with ultraviolet radiation.
19. (original) The method of claim 18, wherein the ultraviolet radiation includes a wavelength in the range of about 100 nanometers to about 300 nanometers.
20. (original) The method of claim 18, wherein the ultraviolet radiation includes a wavelength in the range of about 120 nanometers to about 242 nanometers.
21. (original) The method of claim 17, wherein the ozone-containing gas is pressurized.
22. (original) The method of claim 17, further comprising generating the ozone-containing gas from an oxygen-containing gas, wherein the oxygen-containing gas is at least one selected from the group consisting of: air, oxygen and oxygen-enriched air.
23. (original) The composition of claim 4, wherein the carbonate is sodium carbonate, wherein the glyconate is sodium glyconate, and wherein the sulfate is potassium aluminum sulfate.
24. (original) The composition as defined in claim 1, wherein the composition, prior to final use, is prepared as a composition comprising:
  - (a) Meta Silicate about 2-10 kg;
  - (b) Carbonate about 2-10 kg;
  - (c) Glyconate about 1-5 kg; and

(d) Aluminum Sulfate about 1-5 kg;  
per 300 liters of water.

25. (original) The composition as defined in claim 1, wherein the composition, prior to final use, is prepared as a composition comprising:

(a) Meta Silicate about 4-6 kg;  
(b) Carbonate about 4-5 kg;  
(c) Glyconate about 1-2 kg; and  
(d) Potassium Aluminum Sulfate about 1-2 kg;

per 300 liters of water.

26. (original) The composition as defined in claim 1, wherein the composition, prior to final use, is prepared as a composition comprising:

(a) Meta Silicate about 2-10 kg;  
(b) Carbonate about 2-10 kg;  
(c) Glyconate about 1-5 kg;  
(d) Potassium Aluminum Sulfate about 1-5 kg; and  
(e) Inorganic Salt about 1-5 kg;

per 300 liters of water.

27. (original) The composition as defined in claim 1, wherein the composition, prior to final use, is prepared as a composition comprising:

(a) Meta Silicate about 4-6 kg;  
(b) Carbonate about 4-5 kg;  
(c) Glyconate about 1-2 kg;  
(d) Potassium Al Sulfate about 1-2 kg; and  
(e) Inorganic Salt about 1-2 kg;

Serial No.: 10/596,095

Preliminary Amendment filed September 24, 2007

Atty. Docket: 0108048.0542178

per 300 liters of water.

28. (original) The composition as defined in claim 1, wherein the composition, prior to final use, is prepared as a composition comprising:

- (a) Meta Silicate about 4.9 kg;
- (b) Sodium Carbonate about 4.5 kg;
- (c) Sodium Glyconate about 1.5 kg; and
- (d) Potassium Al Sulfate about 1.5 kg;

per 300 liters of water.

29. (original) The composition as defined in claim 1, wherein the composition, prior to final use, is prepared as a composition comprising:

- (a) Meta Silicate about 4.9 kg;
- (b) Sodium Carbonate about 4.5 kg;
- (c) Sodium Glyconate about 1.5 kg;
- (d) Inorganic salt about 1.5 kg; and
- (e) Potassium Al Sulfate about 1.5 kg;

per 300 liters of water.

30. (original) The composition of claim 1, wherein the composition comprises:

- (a) at least 1 mg/L of one or more meta silicates;
- (b) at least 1 mg/L of one or more carbonate;
- (c) at least 0.5 mg/L of one or more glyconate; and
- (d) at least 0.2 mg/L of one or more sulfate selected from the group consisting of potassium aluminum sulfate, sulfuric acid, sodium sulfate, potassium

sulfate, lithium sulfate, ammonium sulfate, magnesium sulfate, strontium sulfate, and aluminum sulfate;

wherein the concentrations are the concentration in final solution in the water to be treated.

31. (original) The composition of claim 30, wherein the composition further comprises  
(e) at least 0.6 mg/L of one or more salts.

32. (original) The composition of claim 1, wherein the composition comprises:

- (a) at least 1 mg/L of one or more meta silicates;
- (b) at least 2 mg/L of one or more carbonate
- (c) at least 0.8 mg/L of one or more glyconate; and
- (d) at least 0.8 mg/L of one or more sulfate selected from the group consisting of potassium aluminum sulfate, sulfuric acid, sodium sulfate, potassium sulfate, lithium sulfate, ammonium sulfate, magnesium sulfate, strontium sulfate, and aluminum sulfate;

wherein the concentrations are the concentration in final solution in the water to be treated.

33. (original) The composition of claim 32, wherein the composition further comprises  
(e) at least 1 mg/L of one or more salts.

34. (original) The composition of claim 1, wherein the composition comprises:

- (a) at least 3 mg/L of one or more alkali metal silicate selected from the group consisting of sodium or potassium metasilicate, orthosilicate or other water-soluble silicate;
- (b) at least 3 mg/L of one or more carbonate selected from the group consisting of sodium carbonate, sodium sesquicarbonate, sodium sulfate and sodium bicarbonate;

- (c) at least 0.9 mg/L of one or more glyconate; and
- (d) at least 0.8 mg/L of one or more sulfate selected from the group consisting of potassium aluminum sulfate, sulfuric acid, sodium sulfate, potassium sulfate, lithium sulfate, ammonium sulfate, magnesium sulfate, strontium sulfate, and aluminum sulfate;

wherein the concentrations are the concentration in final solution in the water to be treated.

35. (original) The composition of claim 34, wherein the composition further comprises

- (e) at least 0.6 mg/L of one or more salts.

36. (original) The composition of claim 1, wherein the composition comprises:

- (a) at least 1 mg/L of meta silicates;
- (b) at least 2 mg/L of sodium carbonate
- (c) at least 0.8 mg/L of sodium glyconate; and
- (d) at least 0.8 mg/L of potassium aluminum sulfate;

wherein the concentrations are the concentration in final solution in the water to be treated.

37. (original) The composition of claim 36, wherein the composition further comprises

- (e) at least 1 mg/L of one or more salts.

38. (original) The composition of claim 1, wherein the composition comprises:

- (a) from about 1 to about 100 mg/L of one or more meta silicates;
- (b) from about 1 to about 100 mg/L of one or more
- (c) from about 0.1 to about 60 mg/L of one or more glyconate; and
- (d) from about 0.1 to about 100 mg/L of one or more sulfate,

wherein the concentrations are the concentration in final solution in the water to be treated.

39. (original) The composition of claim 38, wherein the composition further comprises  
(e) from about 1 to about 100 mg/L of one or more salts.

40. (original) The composition of claim 1, wherein the composition comprises:

- (a) from about 1 to about 10 mg/L of one or more meta silicates;
- (b) from about 1 to about 10 mg/L of one or more carbonate
- (c) from about 0.01 to about 6 mg/L of one or more glyconate; and
- (d) from about 1 to about 10 mg/L of potassium aluminum sulfate,

wherein the concentrations are the concentration in final concentration in the water to be treated.

41. (original) The composition of claim 40, wherein the composition further comprises  
(e) from about 1 to about 10 mg/L of one or more salts.

42. (original) The composition of claim 1, wherein the composition is an aqueous solution comprising:

- (a) Meta Silicate 0.001 - 1,000 mg/L;
- (b) Sodium Carbonate 1.00 - 850 mg/L;
- (c) Sodium Glyconate 0.00 - 540 mg/L;
- (d) Salt inorganic 1.00 - 920 mg/L; and
- (e) Potassium Al Sulfate 1.50 - 830 mg/L.

43. (original) The composition of claim 1, wherein the composition is an aqueous solution comprising:

- (a) Meta Silicate 1.10 - 500 mg/L;

Serial No.: 10/596,095  
Preliminary Amendment filed September 24, 2007  
Atty. Docket: 0108048.0542178

(b)	Sodium Carbonate	1.70	-	720 mg/L;
(c)	Sodium Glyconate	0.50	-	420 mg/L;
(d)	Salt	0.60	-	300 mg/L; and
(e)	Potassium Al Sulfate	0.90	-	275 mg/L.

44. (original) The composition of claim 1, wherein the composition is an aqueous solution comprising:

(a)	Meta Silicate	1.20	-	7.00 mg/L;
(b)	Sodium Carbonate	2.90	-	4.80 mg/L;
(c)	Sodium Glyconate	0.80	-	3.50 mg/L;
(d)	Salt inorganic	0.60	-	2.80 mg/L; and
(e)	Potassium Al Sulfate	0.20	-	1.90 mg/L.

45. (original) The composition of claim 1, wherein the composition is an aqueous solution comprising:

(a)	Meta Silicate	3.50	-	6.50 mg/L;
(b)	Sodium Carbonate	3.20	-	4.00 mg/L;
(c)	Sodium Glyconate	0.90	-	1.40 mg/L;
(d)	Sea salt anorganic	1.00	-	1.35 mg/L;
(e)	Potassium Al Sulfate	0.80	-	1.35 mg/L; and
(f)	Fragrances	1.00	-	1.10 mg/L.

46. (original) A composition for removing a biofilm from a surface comprising:

(a) one or more metasilicate;

(b) one or more carbonate;

(c) one or more glyconate; and

(d) one or more aluminum salt.

47. (original) The composition of claim 46, wherein the composition is in a dry formulation selected from the group consisting of powders, granules or tablets.
48. (original) The composition of claim 47, wherein the composition is combined with a suitable carrier.
49. (original) The composition of claim 47, wherein the metasilicate is present in an amount of 1-75% by dry weight, based on the total amount of the composition.
50. (original) The composition of claim 47, wherein the carbonate is present in an amount of 30-90% by dry weight, based on the total amount of the composition.
51. (original) The composition of claim 47, wherein the carbonate is present in an amount of 10-98% by dry weight, based on the total amount of the composition.
52. (original) The composition of claim 47, wherein the aluminum salt is incorporated into the composition in the range of 0.5-20%, based on the total amount of the composition.
53. (original) The composition of claim 47, wherein the aluminum salt is incorporated into the composition in the range of 1-10%, based on the total amount of the composition.
54. (original) The composition of claim 47, wherein the aluminum salt is incorporated into the composition in the range of 1-5%, based on the total amount of the composition.
55. (original) The composition of claim 53, wherein the aluminum salt is an inorganic aluminum salt.

56. (original) The composition of claim 55, wherein the inorganic aluminum salt is selected from the group consisting of potassium aluminum sulfate, ammonium aluminum sulfate and aluminum chloride.

57. (original) The composition of claim 55, wherein the aluminum salt is a soluble aluminum carboxylate.

58. (original) The composition of claim 55, wherein the soluble aluminum carboxylate is selected from the group consisting of aluminum lactate, aluminum citrate and aluminum maleate.

59. (original) The composition of claim 56, wherein the composition further comprises  
(e) one or more salts.

60. (original) The composition of claim 47, wherein the composition comprises:

- (a) about 31%-50% metasilicate;
- (b) about 29%-45% carbonate;
- (c) about 8%-18% glyconate; and
- (d) about 8%-18% potassium aluminum sulfate,

based on the total amount of the composition.

61. (original) The composition of claim 47, wherein the composition comprises:

- (a) about 10%-70% metasilicate;
- (b) about 10%-70% carbonate;
- (c) about 4%-50% glyconate; and
- (d) about 4%-50% potassium aluminum sulfate,

based on the total amount of the composition.

62. (original) The composition of claim 47, wherein the composition comprises:

Serial No.: 10/596,095

Preliminary Amendment filed September 24, 2007

Atty. Docket: 0108048.0542178

- (a) about 8%-66% metasilicate;
- (b) about 8%-66% carbonate;
- (c) about 4%-45% glyconate;
- (d) about 4%-45% potassium aluminum sulfate; and
- (e) about 4%-45% inorganic salt,

based on the total amount of the composition.

63. (original) The composition of claim 47, wherein the composition comprises:

- (a) about 27%-45% metasilicate;
- (b) about 25%-40% carbonate;
- (c) about 7%-18% glyconate;
- (d) about 7%-18% potassium aluminum sulfate; and
- (e) about 7%-18% inorganic salt,

based on the total amount of the composition.

64. (original) The composition of claim 47, wherein the composition comprises:

- (a) about 40% metasilicate;
- (b) about 36% carbonate;
- (c) about 12% glyconate; and
- (d) about 12% potassium aluminum sulfate;

based on the total amount of the composition.

65. (original) The composition of claim 47, wherein the composition comprises:

- (a) about 35% metasilicate;

- (b) about 32% carbonate;
- (c) about 11% glyconate;
- (d) about 11% potassium aluminum sulfate; and
- (e) about 11% inorganic salt,

based on the total amount of the composition.

66. (original) The composition of claim 60, wherein the metasilicate is an alkali metal silicate selected from the group consisting of sodium or potassium metasilicate, sodium or potassium orthosilicate and mixtures thereof.
67. (original) The composition of claim 60, wherein the carbonate is selected from the group consisting of sodium carbonate, potassium carbonate, sodium sulfate, sodium bicarbonate, potassium bicarbonate, and sodium sesquicarbonate.
68. (original) The composition of claim 60, wherein the carbonate is selected from the group consisting of sodium carbonate, potassium carbonate, and mixtures thereof.
69. (original) The composition of claim 60, wherein the glyconate is selected from the group consisting of ammonium glyconate, lithium glyconate, sodium glyconate, sodium starch glyconate, potassium glyconate, ammonium acid glyconate, sodium acid glyconate, lithium acid glyconate, potassium acid glyconate, ammonium D-glyconate, lithium D-glyconate, sodium D-glyconate, potassium D-glyconate, glyconic acid, glyconic D acid, glyconic L acid, ammonium L-glyconate, lithium L-glyconate, sodium L-glyconate, potassium L-glyconate, magnesium glyconate, magnesium acid glyconate, magnesium D-glyconate, magnesium L-glyconate, calcium glyconate, calcium acid glyconate, calcium D-glyconate, calcium L-glyconate and mixtures thereof.
70. (original) The composition of claim 60, wherein the carbonate is sodium carbonate and wherein the glyconate is sodium glyconate.

Serial No.: 10/596,095

Preliminary Amendment filed September 24, 2007

Atty. Docket: 0108048.0542178

71. (currently amended) The composition of claim 47, wherein the composition does not produce or comprise a peroxide, a terpene or sodium hypochlorite hypochlorite.
72. (original) The composition as defined in claim 47, further comprising an effective amount of a bactericide.
73. (original) The composition as defined in claim 59, wherein the salt is sea salt.
74. (original) The composition as defined in claim 72, wherein the bactericide is any bactericide having a bactericidal potency and host spectrum substantially equivalent to hydrogen peroxide.
75. (original) The composition as defined in claim 47, which further comprises a biofilm dislodging enhancer agent.
76. (original) The composition as defined in claim 75, wherein the enhancer agent is a calcium chelator.
77. (original) The composition as defined in claim 75 wherein the enhancer agent is a chaotropic agent.
- 78 (new) A method for treating medical waste or equipment, comprising adding an effective amount of a composition of claim 1-15 to the water system.